

LECTURE N 12

American Science

Read and translate the following key words and word combinations:

Scientific establishments , to lag behind , challenges of World War I , Scientific undertakings, to follow the suit, under the auspices ['o:spisəs], to regain momentum , to pave the way ,to be second to none.



In the American colonies approach to science was practical. The trade was associated with sailing so scientific interest focused on astronomy, mathematics, topography, meteorology and stimulated usefulness for navigation and agriculture. Almost all scientific activities in New England were concentrated in Boston, which from the beginning became the intellectual capital of New England. Another cultural center was in Philadelphia, which had more political, cultural and intellectual ties with Europe.

After the revolution and independence new favorable conditions for organization science were gradually created. In the late 18th and the early 19th centuries new ideas and technology demanded new approaches and teamwork. In 1848 the **American Association for the Advancement of Science** was founded.

In 1863 the **National Academy of Sciences (NAS)** was organized. The creation of the Academy originated from the immediate practical problems of the time of the Civil War. It also reflected the fact that at that time the US was beginning to emerge as a technological country. The Academy created departments related to scientific and technological problems (the Geological Survey, the National Bureau

of Standards, the US Weather Bureau, the Patent Office, etc.). The need for scientific instruction led to the organization of scientific schools and centers of learning and research (at Yale and Harvard Universities). In 1861 the Massachusetts Institute of Technology was founded. The challenges of World War I had a far-reaching effect on the development of science in the USA. During the war and after it American universities produced the great number of well-trained scientists and engineers. With the introduction of graduate schools into American education scientific research began to play a major role in many universities. American industry began to have a scientific foundation; several of the larger industries established research laboratories of international level. The Federal Government also developed a number of scientific agencies.

Like education, the US scientific establishments have always been serious responses to society's practical needs. Since America was rich in natural resources but relatively poor in personnel for education and research, the Federal Government did a lot to master resources for the guidance of the nation's scientific community. A few scientists from other countries were invited. Among them the inventor of the telephone Alexander Graham Bell from Scotland, a developer of alternating-current electrical systems Charles Steinmetz from Germany, the creator of television camera Vladimir Zworykin, the serb Nikola Tesla who invented brushless electrical motor based on rotating magnetic fields.

During World War II a lot of leading European scientists, many of them of Jewish descent, fled to America from the regimes of their countries. One of the first to do so was **Albert Einstein**. After him a good percentage of Germany's theoretical physics community left for the US as well. This circumstance gave American science in general and the American academy in particular a mighty boost.

In the mid-1950s the US government gave huge investments to the science sector, which attracted scientists from all over the world to work there. The

research facilities in the US were second to none, and scientists were drawn to the US for this reason alone. That led to the situation that since 1950, Americans have won approximately half of the Nobel Prizes in the sciences. (so far over 781). It is also worth mentioning that among the American Nobel Prize winners there are not a few Russian former compatriots (over 60), who moved to the USA during different periods of time and under different circumstances. Undoubtedly, they have left a considerable "Russian" trace both in American and the world science. Alexander Seversky (1894-1974) was a designer of military aircraft. Among his ideas were the autopilot system disprove in the air. Stepan Timoshenko (1878-1972)-scientist-metallurgist, the largest specialist in the world of resistance materials. Nobel laureate economist Leontief, the inventor of television Zworykin, aircraft designer Igor Sikorsky, the great ophthalmologist Elena Fedorovich, Nina Fedorova - geneticist, academician of the National Academy of Sciences, physicist George Gamow and many others.

Being one of the few industrial countries not crashed by war, the US began to occupy a position of unchallenged leadership in the post-war period. Although the USA does not exercise a centralized science and technology policy, it is impossible to say that there is absolutely no central monitoring of science and technology there. The Federal government spends huge amounts of money on science. It is the main source of funding for fundamental research and the biggest customer of military programs.

Modern network of scientific organizations in the United States includes federal financed research centers, state laboratories, private industrial firms and non-profit organization. The US government maintains its own laboratories (such as the **Oak Ridge National Laboratory, the National Research Laboratory or the Brookhaven National Laboratory**). The governmental and military

contracts also encourage the growth of science-oriented industries (e.g. Bell Laboratories).

Scientific organizations formally classified as “independent research institutes “but nicknamed as “Think Tanks” or “Brain Factories” were organized. The main aims of **TT** or **BF**, attached to the Federal government and its Agencies by annual contracts, are long-range analysis and ideas necessary for policy-making, problem solving and decision-making. The largest of the “Think tanks” is **the RAND Corporation** (Research and Development). RAND employs a lot of prominent scholars: mathematicians, chemists, physicists, social scientists, computer experts and others. The most important researches carried out by RAND are connected with military tasks

Thanks to large-scale federal sponsorship the nature of academic research has gone a very substantial change.

The American Academy of sciences occupies at present a whole quadrangle at Constitution Avenue in Washington D.C. It has a great number of programs that include the participation in international scientific undertakings, the development of relationships with other academies, cooperation in worldwide scientific project. Although it does not maintain direct research programs of its own, as, for example, the Russian Academy of Sciences, the Academy plays its leading role in various advisory governmental committees and determining scientific policy matters in general. The Academy also established a number of its Councils and Foundations.

The National Research Council. NRC was intended to strengthen and enlarge the role of the Academy in public affairs by adding to its staff a much larger body of American scientists and engineers and acting as the center for intersociety scientific activities.

The National Science Foundation (NSF) is responsible for the progress of science across astronomical, space, earth and ocean sciences; programs concerned with biological and social sciences; investigations in engineering; encouraging the training of engineers at undergraduate and graduate levels through grants. NSF sponsors work in mathematical sciences, computer research and chemistry; manages and funds the US activities in Antarctica. NSF also administers programs for exchange with other countries of students, scholars and teachers.

The American Physical Society (APS) pursues the mission “to advance and diffuse the knowledge of physics”, to be active in public and governmental affairs, and in the international physics community. There is a long list of the names of prominent American physicists awarded with different national and international prizes: **Gorge Pullin** working on gravitational waves, **Kris Larsen**, studying astronomy and black holes, **David Landau**, the Director of the Center for Simulational Physics at the University of Georgia, **Timothy Gay** with his group investigating polarized electron molecules (e.g. DNA) and many others.

The National Academy of Engineering was established in 1964 as an organization of distinguished engineers, sharing with the National Academy its responsibility for advising the Federal government.

A great part of Research and Development is done at the US universities, sponsored mainly through contract systems. The organization of research in universities is carried out in two forms: on the basis of grants and contracts. Universities conduct research not only in their laboratories, but also in laboratories belonging to different government departments. The largest Federal research centers are managed under contracts of University administration. An example is the Laboratory Lincoln at the Massachusetts Institute of technology. Thanks to the cooperation of University research with industry there is the rapid growth of scientific and industrial complexes. Among such complexes

the most important are: the Cambridge-Boston, San Francisco, Los Angeles, Princeton and Houston. **Big science research** is mainly funded not only by the Federal government agencies and private business enterprises, but also by some international organizations, e.g. UNESCO. A considerable part of the money comes from the Pentagon, which remains the biggest supporter of new technologies and developments.

One of the most spectacular-and controversial- accomplishments of US federal technology became the harnessing of nuclear energy. The development of the atomic bomb and its use against Japan in 1945 initiated the Atomic Age, a time of anxiety over weapons of mass destruction. Fortunately, besides military aims, the sophisticated advantages of atomic energy led also to its peaceful uses in economy and medicine.

Almost in tandem with the Atomic Age there has been running the **Space Age**. American scientist Robert Goddard was one of the first to experiment with rocket propulsion systems even before the Second World War. During the late 1940s, the US Department of Defense pursued upper atmospheric research as a means of assuring American leadership in this field. A major step forward came when President D. Eisenhower approved a plan to orbit a scientific satellite to gather scientific data about the Earth.

In October 1957 the world's first artificial satellite **SPUTNIC 1** was launched in the **Soviet Union**. The space race began and in 1958 the Congress and the President created the Federal Independent Agency **National Aeronautics and Space Administration (NASA)** as "An Act to provide for research into problems of flight within and outside the Earth's atmosphere and for other purposes". NASA was headed by Famous German rocket specialist **Werner von Braun** and absorbed into itself the earlier National Advisory Committee for Aeronautics and lots of other organizations. It keeps three major research laboratories and some smaller test facilities (with the annual budget of 100 million dollars and 8000 employees).

Eventually NASA created other Centers and a number of affiliates including the Space Center in Houston, where the forming and training of the space crews is carried out.

When in 1961 Russian cosmonaut **Yuri Gagarin** returned to the earth he pronounced a well-known challenge: “Now let the other countries try to catch us”. Several weeks later President Kennedy appealed to Congress: “I believe this nation should commit itself to achieving the goal of landing a man on the moon and returning him safely to earth”.

After that NASA began to conduct space missions. On May 5th, 1961 **Alan B. Shepard Jr.** became the first American to fly into space, and on February 20th, 1962 **John H. Glenn** became the first US astronaut to orbit the Earth. One of the highlights of the program occurred on June 3, 1965, when **Edward H. White** became the first US astronaut to conduct a spacewalk.

The main achievement of NASA during its early years involved the human exploration of the Moon. In 1968, after 11 years of major challenges and tragedies – notably 1967 fire in an Apollo capsule, having taken the lives of three astronauts, the Apollo project was launched under the auspices of the NASA. Apollo 7 carried three men around the earth, and then Apollo 8 carried three others around the moon. Apollo 9 and 10 tested the workability of the lunar module. On July 16, 1969, astronauts **Neil Armstrong and Edwin Aldrin** landed on the moon in Apollo 11, leaving behind a plaque that read: “Here Men from Planet Earth First Set Foot upon the Moon. We Came in Peace for All Mankind”. “That’s one small step for man, one giant leap for mankind”, said Neil Armstrong on returning to the earth.

Since then, there have been other American flights to the moon. Displays at the **National Air and Space Museum in Washington, D.C.** show the developments in space travel. From the scientific point of view, Apollo 15 and Apollo 16

expeditions were especially important, as they were aimed at learning more about the origin of the moon and the universe. During the moon expedition astronauts **Scott and Irwin** were able to leave the lunar Module to drive around over more than 27 kilometers of lunar ground and bring back a chunk of truly ancient lunar crust. After Apollo 17 the exploration of space shifted from the Apollo lunar program to Skylab, the manned orbital space station.

In 1975, NASA began to cooperate with the Soviet Union to achieve the first international human spaceflight, **the Apollo-Soyuz Test Project (ASTP)**. The two spacecrafts were launched within 7.5 hours, docked three hours after and 3 American astronauts **Thomas P. Stafford, Vance Brand, Donald Slaytor** and 2 Soviet Cosmonauts **Alexei Leonov and Valerii Kubasov** met and shook hands in orbit. After that various US space shuttles docked with **the Soviet Mir nine times**, and 52 American astronauts as well as astronauts from Europe and Japan, visited the station for research and training.

During the 1980s and the 1990s, the USA launched several spaceships to investigate distant planets: Jupiter, Venus and Mercury. The Viking probes landed on Mars and provided valuable information of the planet. Since 1975 there have been a number of space expeditions to Mars, Jupiter and its moon Europa stimulating public interest in aerospace exploration. NASA's **Hubble Space Telescope** launched in 1990 discovered 16 extrasolar planet candidates. Using innovative technologies, the Mars spacecraft landed on Mars on July 4th, 1997 and explored the surface of the planet. The Mars Pathfinder mission was a scientific success, watched by many via the Internet.

By the 1980s NASA had created the nation' space transportation system of the future – the Space **Shuttle** that was a reusable manned spacecraft taking off like a rocket and landing like an airplane. After the number of successful missions of shuttle Columbia, on January 28, 1986, the space shuttle Challenger exploded soon after liftoff due to the leak of one of two Solid Rocket Boosters. All seven

members of the crew including a woman astronaut were killed. On the First of February 2003 American Space Shuttle Columbia again broke up over Texas as it descended for a landing at the Kennedy Space Center in Florida following a 16-day flight. All its seven crewmembers died. After the Challenger disasters the Shuttle program was stopped for over two years.

In spite of the tragedies and loss of the human lives NASA continued space scientific research with the **cooperation** between Russian and U.S. scientists.

The USA and Russia set up quite a number united workgroups for coordination of cooperated actions in such fields as biology, astrophysics, solar physics and interplant researches. From 1995 to 1998 the joint programs **Mir-Shuttle** and **Mir-NASA** were carried on. The USA-Russian Space cooperation was supervised by joint American-Russian workgroups, including the representatives of different governmental bodies, universities and institutions of the USA and Russia.

The ILS (International Launch Services) joint venture was formed in 1995 and became another example of cooperation between the two countries. One of the notable events in bilateral space work was the establishment of **the Sea Launch International** consortium, of which 40% was owned by **Boeing Commercial Space Co.** and 25 % by **Russian Energiya Rocket Space Corp.** The achieved experience paved the way for the creation of another International project **ISS** with the participation of 11 countries. The permanent work of ISS began in November 2000. In May 2000 the first launch of the U.S. rocket-carrier Atlas 111, equipped with a Russian RD-180 engines was conducted.

John Mather and George Smoot's Nobel Prize awards of 2006 marked the inception of cosmology as a precise science and manifested the work of more than 1,000 researchers, engineers and other participants for the experimental measurements that revealed the blackbody form of the microwave background radiation measured by satellite launched by NASA in 1989.

1. Answer the questions.

1. What do you know about NAS activity? What are the similar and different features in the work of the US National Academy of sciences and the Russian one?
2. Which non-profit scientific institutions do you know in the USA? What is "Think Tanks"?
3. Which role did the World Wars play in the development of American science?
4. What part did the US universities occupy in the development of research?
5. Which names of American Nobel prize winners do you know? Do you know any Russians among them?
6. What do you know about NASA activities?
7. Tell about the space age in the USA and Russia. Give the examples of space cooperation of our two countries.

2. Render the texts in English:

Современная сеть научных организаций в США включает государственные ведомственные лаборатории, федерально финансируемые исследовательские центры, частные промышленные фирмы и некоммерческие (бесприбыльные) организации. Это обусловлено тем, что федеральное правительство тратит огромные средства на науку. Оно - основной источник финансирования фундаментальных исследований и самый крупный заказчик военных программ.

Б). Бесприбыльные исследовательские организации.

Бесприбыльные исследовательские организации не ставят своей целью получение коммерческой прибыли. Это освобождает их от федеральных налогов и делает их относительно независимыми. Бесприбыльными исследовательскими организациями являются исследовательские отделы университетов, федерально финансируемые исследовательские центры, научно-технические общества, музеи, частные благотворительные фонды. Сюда же относятся независимые исследовательские институты, профессиональные общества и Академия наук.

Наибольший объем исследований среди неприбыльных организаций выполняют независимые исследовательские институты. Они не входят в состав фирм и университетов и различны по своим размерам и структуре. Это, как правило, специализированные исследовательские организации. Старейшими неприбыльными организациями являются

Меллоновский, Беттелевский и Рокфеллеровский фонды. Особое место в этой группе неприбыльных федеральных исследовательских центров занимает «РЭНД корпорейшен». Это специализированный научный центр, который дает независимую экспертную оценку качества и способов исполнения различных научно-исследовательских проектов. Эта корпорация проводит предварительные исследования, предшествующие выполнению проекта, но не принимает практического участия в их осуществлении, хотя консультирует исполнителей в ходе выполнения проекта. Ее часто называют «мозговым центром», или «мыслительным резервуаром».



Read and translate the following words and word combination:

To spawn - (создавать, зарождаться, размножаться), an entrepreneur - предприниматель, владелец предприятия, venture capital – капитал, вложенный в предприятие, synergy - явление в деловой практике, когда общий результат превышает сумму отдельных эффектов, to endow - капитал, вкладываемый в предприятие, to impede- обеспечивать капиталом, Insulator - диэлектрик, непроводник, flagship - флагман.

Geographically, the Silicon Valley is the northern part of the Santa Clara County, an area stretching from the south end of the San Francisco to San Jose.

The name Silicon Valley was coined in 1971 by Don C. Hoefler, editor of the Microelectronics News, when he used this term in his magazine as the title for a series of articles about semiconductor industry in Santa Clara County. Silicon Valley saw the development of the integrated circuit, the microprocessor, the personal computer and has spawned a lot of high-tech products as pocket calculators, cordless telephones, lasers or digital watches. Looking at our high-

tech society in which the PC has become indispensable-both in businesses and at home, the crucial role of Silicon Valley as the birthplace of the microelectronics and then the PC revolution has become even more evident.

Silicon Valley is also seen as a place where many entrepreneurs backed by venture capital have made the American Dream come true as “Overnight Millionaires”. This makes Silicon Valley a philosophy saying that everything which seems impossible is feasible and that improvements in the US society can take place. The mayor of San Jose Thomas Emery called it the “economic and cultural frontier where successful entrepreneurship and venture capitalism, innovative work rules and open management styles provide the background for the most profound inquiry ever into the nature of intelligence” which might, together with “bioengineering and artificially intelligent software”, affect our evolution. The revolutionary inventions and developments, which have been made in this «Valley», affect the daily life and it is hard to imagine high-tech society without them.

The story of the “Silicon Valley” starts with **Stanford University**, which has been of fundamental importance in the rise of the electronics industry in Santa Clara County. In 1887, Leland Stanford, a wealthy railroad magnate who owned a large part of the Pacific Railroad, decided to built a university and dedicate it to the memory of his son who died very young. The university was opened in 1891 and became later one of the world’s greatest academic institutions.

Frederick Terman who is known today as a godfather of the Silicon Valley changed the position of this university fundamentally. After graduation from Stanford University he decided to go east to the Massachusetts Institute of Technology (MIT), but after receiving his doctorate in 1924 he turned to Palo Alto and became the head of the engineering department in 1937. Terman established strong cooperation between Stanford and the surrounding electronics industry to stop the brain drain among the university graduates, as they could not find good jobs in California at that time. Thanks to him many companies endowed the

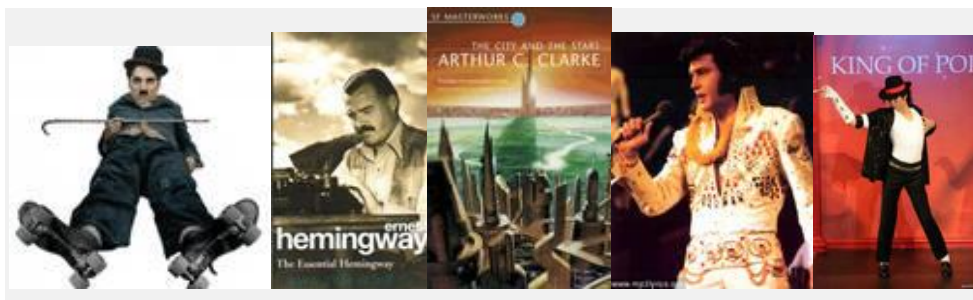
university with gifts, which Terman used to hire qualified professors from all over the USA. Thus, he created a mechanism, which increased the settlement of the electronics industry.

During World War II, after the Japanese attack at Pearl Harbor in 1942, a great deal of the US military forces and of the military production was moved to California. Within a few years, California became a booming industrial state and the military center of the USA. After World War II, the **Stanford Research Institute (SRI)** was founded to provide the industry with more skilled specialists and increase the number of companies in Santa Clara County. More firms - among them Hewlett-Packard as one of the first residents - settled their departments in this park.

Military funding for high-tech products was responsible for the rapid growth of Silicon Valley. A lot of firms (Such firms as FMC, GTE, Varian Associates, Westinghouse, and finally Lockheed) opened their R&D departments in the Stanford Research Park and started Lockheed Missiles and Space Company (LMSC). The invention of the microprocessor in the early 1970s represented the next step towards the modern way of computing, providing the basis for the subsequent personal computer revolution.

I'll just call the companies Intel Corporation (Integrated Electronics), that designed the first microprocessor, IBM (International Business Machines) that has become the world's leading company in the big mainframe computers since the 1950s., The Apple Company, the Sun workstation, and Microsoft Corporation.

CULTURAL LIFE



Although it is a generalization, it is useful to divide the US cultural history into three broad stages.

The first stage stretches from colonial times until about the Civil war. In this period, American art, architecture, music and literature were strongly influenced by European ideas and traditions. What was fashionable or popular in London, Paris, Rome or Vienna usually set the pattern for Boston, New Orleans, New York, and Philadelphia. Some of the colonial painters, like other craftsmen, came across the sea to try their luck.

The period after the Civil War saw two new genres in American painting, the creation of works, which described American landscapes and the everyday life of people, depicted mostly by a Russian artist **Pavel Svirin**. Scores of street scenes, gathering in village taverns, political rallies, poor women's kitchens, factory workers, Black slaves were already on canvases.

If genre art was nourished by political and social forms, landscape paintings owed much to romantic poetry of **William Cullen Bryant** and books by **James Fennimore Cooper**. Landscape were merged with scenes of the migrants crossing the plains and mountains in their wagons, with Indians, buffalo and death often in the background. Among the American artists of that period one can mark **Winslow Homer and Thomas Eakins**..

A landmark in the history of American painting was made by the **Armory Show of 1913** Sixteen hundred paintings by more than 300 Americans artists were shown there, representing some new genres like the Impressionists, Post-Impressionists and the Cubists. Later on with the Depression, many American artist of different sties depicted the strikers, the unemployed, the Blacks, all those whose lives were crushed by the economic desaster. **R. Marsh** was

dealing with urban poor, **Ch. Burchfield** and **E. Hopper** with dreary working class identical houses.

Like scientists many of highly creative artists were driven to America by the Second World War. In the 1950-60s abstract expressionism, pop art, minimal art and photo-realism became quite common in the USA. Some of the artists associated with such movements are **Close, Davis, de Kooning, Demuth, Dine, Estes, Hanson, Johns, Kline, Lichtenstein, Motherwell, Oldenburg, Pollock, Rauschenberg, Rosenquist, Rothko, Segal and Warhol.**

By the 60-70s New York had become one of the art capitals of the world. Now in New York alone there are around 12000 artists and sculptors, around 400 art galleries and hundreds of exhibitions and shows each season. Among the great New York museums there are the **Museum of Modern Art (MOMA)** which houses the most complete collection of modern art in the world, the **Metropolitan Museum of Art**, the **Guggenheim**, **The Cloisters** with its fine medieval collection, the **Brooklyn Museum**, the **Frick Collection**, the **Nation Museum of Design**, the **Museum of American Indian**, the **American raft Museum** and the **Whitney Museum of Modern Art**. Besides New York Chicago is often associated with art and modern architecture. Chicago is the city where several important artists live. Some of them, like **Mies van der Rohe** or **Philip Johnson**, did much to influence modern design. In Chicago there is also the museum of **Louis Sullivan**, called “the father of the skyscraper”.

Literature

Like in art, American literature of the first generations was strongly dependent on British traditions and books brought from there. Before the Revolution and after it many revolutionary-minded Americans viewed literature and art as the means of independence and demanded to lay the foundations of national American literature. The progenitor of American short

story was **Washington Irving (1783-1859)**, the author of “The Sketch-Book” (1819) and “Alhambra”(1832). **James Fennimore Cooper (1789-1851)** wrote the number of novels about American frontier. His novels “The Spy”(1821) and “Last of the Michigan’s”(1926) became the first American bestsellers, translated into many world languages.. A poet and prose-writer **Edgar Poe (1809-49)**, the author of “The Murders in the Rue Morgan” (1841), “The Fall of the House of Usher” and “The Gold Bug”, initiated. the detective genre. **Herman Melville’s** masterpiece “Moby Dick”was published in 1850. Poet **Henry Longfellow (1807-82)** in his poems of “The Song of Hiawatha” (1855), “Paul Revere’s Ride” and “The Courtship of Miles Standish” (1858) created images of courageous Indian heroes.

Walt Whitman’s(1819-92) “Leaves of the Grass” (1855) glorified people and opposed slavery. It was a tribute to the Civil War soldiers who had laid on the battlefields and whom he had seen while serving as an army nurse. The book went through numerous editions during the author’s lifetime, swelling in content from a thin volume to the voluminous work it is today. Walt Whitman’s poem “When Lilacs Last in the Dooryard Bloom” (1865) was dedicated to the memory of Abraham Lincoln. The strong rhythms and unusual style of Whitman’s verses, the brightness and impressiveness of his images made Whitman the greatest poet of the USA.

Travel was also a favorite subject. When **F. Parkman (1823-93)** published his work “The California and Oregon Trail or Life on the Prairies and in the Wigwam” (1849) and **Ralph Waldo Emerson** composed his memorable essay, glorifying the spirit of the youthful and vigorous United States, they. became immediately popular..

Whitman, Longfellow, Whittier, Oliver Wendell Holmes, James Lowell to a greater or lesser degree stood against the slavery. But their influence was relatively smaller compared to that of **Harriet Beecher Stowe (1811-96)**, the

author of “Uncle Tom’s Cabin or Life Among the Lowly”. Like many novels of the time, it first appeared serialized in “The National Era” and copies could not be printed fast enough to keep up with the demand of the readers. “So you’re the little woman who started the big war”- said Abrahams Lincoln when he met H. Stowe at first time in 1882.

Joel Chandler Harris (1848-1908) composed a great number of Black folklore and published his collections of tales “Uncle Remus Stories” (1880) and “Nights with Uncle Remus” (1883).

The period after the Civil War is associated with the second stage of the US literature. The leading prose writer of the end of the 19th century was **Mark Twain (Samuel Langhorne Clemens) (1835-1910)**. Twain was born in the state near the Mississippi River His work as a riverboat pilot steering boats up and down the river made the most important influence on him and his books. One of Twain’s first books is called “Life on the Mississippi” (1883). His “The Adventures of Tom Sawyer” (1876) and “Huckleberry Finn” (1884) tell about the lives of young heroes on the Mississippi river. Together with Twain’s romantic tale “The Prince and the Pauper” (1889) they are still read by children all over the world. At the same time his “Golden Age” (1873) and “A Connecticut Yankee at King Arthur’s Court” (1889), exposing American vanity, corruption and hypocrisy, are full of strong satire. Incomparable depiction of colloquial speech, peculiarities of paradox, humor and wit are characteristic features of Mark Twain’s writing..

The third and present stage is marked by a tremendous surge of American creativity in all areas, by a steady self-confidence and by growing international influence of American literature. The American literature of the 20th century as a mirror of society was opened by **Theodore Dreiser (1871-1945)**. In his first realistic novel “Sister Carrie” Dreiser challenged the American myth that honesty and hard work inevitably lead to success. He

followed the novel with several other strong social-critical works of fiction "Jennie Gerhard" (1911), "The Financier"(1912), "The Titan"(1914), "An American Tragedy" (1925). Later T. Dreiser published two collections of stories "Free and Other Stories"(1918) and "Chains: Lesser Novels and Stories"(1927). Many of these stories dramatized the theme of love as the most powerful force in life.

O. Henry (Porter William Sidney) (1862-1910) created a great number of short stories about the life of simple, poor Americans, collected in his books "Cabbages and Kings"(1904), "The Four Million"(1906), "The Gentle Grafters"(1908).

The Northern stories by **Jack London (1876-1916)** were extremely popular both in the USA and abroad. His novels "The Son of Wolf" (1900), "The Sea-Wolf"(1904), "Martin Eden"(1909) and many others were translated and published in Europe and Russia.

The horrors of World War I and the period following it in the 1920s sparked the imagination of some of the greatest writers in American literary. They include **Francis Scott Fitzgerald (1896-1940)**, the author of short stories and novels "The Great Gatsby" (1925), "Tender is the Night"(1934), "The Last Tycoon"(1941) about so-called "lost generation" and **Gertrude Stein (1874-1946)**. Her most widely read book "The Autobiography of Alice B. Toklas" was devoted to her life in Paris, her meeting with famous French artists and expatriate American writers such as Ernest Hemingway. The great master of the modern prose style **E. Hemingway (1899-1961)** in his early books "Fiesta"(1926), "For Whom the Bell Tolls" (1940) also expressed the frames of mind of the "lost generation". E. Hemingway volunteered for an ambulance unit in Spain during World War I, but was wounded and hospitalized for six months. His first successful novel "The Sun also Rises"(1926) is about the group of American expatriates living in France and Spain who had lost their joy in life

and felt wasted. His "Farewell to Arms" (1929) is another work that reflected the growing disillusionment with war. The main idea of the author is the tragic stoicism of his main characters. According to Hemingway a man must retain courage and dignity under very harsh circumstances, even facing the threat of death. While living in Cuba in the early 1950s, he wrote "The Old Man and the Sea" (1952) about the courage and fortitude of an old Cuban fisherman, awarded with the Nobel Prize in 1954.

More than ten other American writers received the Nobel Prize for Literature. The very first American to be honored by a Nobel Prize in Literature in 1930 was **Sinclair Lewis (1885-1951)**. In his popular novels "Main Street"(1920), "Babbitt"(1922) and "Arrowsmith"(1925) S. Lewis could describe the lives and values of small town people with sincerity and great understanding.

William Faulkner (1897-1962), known for his novels about people living in the South "The Sound and the Fury"(1929), "As I Lay Dying"(1930), "Intruder in that Dust"(1948), received the Nobel prize in 1949. Faulkner's style is very much different from that of Hemingway. While Hemingway wrote in short, simple sentences and used a great deal of conversation, Faulkner's sentences sometimes carry on for almost an entire page, with a lot of clauses strung together by commas.

Among the other Nobel prize winners there are a playwright **Eugene O'Neill(1888- 1953)**, **Saul Bellow (1915)**, **Isaac Bashevis Singer (1904-91)** and **John Steinbeck (1902-68)**, noted for "Grapes of Wrath" and "The Winter of Our Discontent" picturing the complexities of life in America.

John Cheever (1912-82) published the novels and stories "The Wapshot Chronicle"(1957), "Bullety Park"(1969), "Falconer"(1977) in which he used satire to express socio-economic essence of life. **J.D. Salinger (1919-)** achieved

great literary success with the publication of his novel “The Catcher in the Rye”, centered on the character of 16-year-old boy, who flees his elite boarding school for the outside world only to become disillusioned by its materialism and phoniness. A playwright and poet **Dubose Hayward (1885-1940)** wrote about the life of black American Dockers. His popular novel “Porgy” was staged in 1927 and later became the plot of opera “Porgy and Bess”. Black Americans also wrote about their experiences in American society. The Black writer **Richard Wright (1908- 1960)** became well known as the author of the number of novels describing the feelings and fates of black Americans.

During the civil rights movement in the 1950s and 1960s more Afro-Americans began to write. **James Baldwin (1924-1987)** is well-known writer of that time. His first novel “Go Tell It on the Mountain” (1953) is about his own life as a poor child growing up in New York ghetto, Harlem. In protest against racism in American society, J. Baldwin emigrated and lived abroad until 1977. The life of Harlem inspired the poems of one of the best known black American poets of the 20th century **Langston Hughes (1902-67)**. To Hughes it seemed that the people of Harlem’s hopes of better attitude had been delayed – “deferred” for too long:

“What happens to a dream deferred? Does it dry up like a raisin in the sun? Or fester like a sore-and then run? Maybe it just sags like a heavy load. Or does it **explode?**”

Maya Angelou is a contemporary black American author and poet. Her first book “I Know Why the Caged Bird Sings” (1970) has an autobiographical character. In 1993 at President Clinton’s first inauguration ceremony, she read her poem “On the Pulse of Morning” on TV to the entire country. **Alex Hayley’s** epic story of the black experience “Roots” (1976) with the subsequent television special caused white America to stop and investigate its “past sins”.

In 1983 **Alice Walker** won a Pulitzer Prize for her novel 'The Color Purple', devoted to her struggle for equality.

In the 1950s there appeared a group of unconventional writers and artists "The Beat Generation" The writers of this generation, called beatniks, wanted to create a new kind of writing grown from poetry readings in the form of jazz. The poetry of **Allen Ginsberg (1926-1997)** was considered unconventional because it did not follow the structure of traditional verse. **Jack Kerouac's (1922-1969)** writing had a new spontaneous style. His best-known novel "On the Road" describes beatniks wandering through America seeking an idealistic dream of communal life and beauty. In the 1960s a young writer and singer **Bob Dylan** used protest lyrics to support the anti-war movement of the time. For many young people he became the voice of the conscience of his generation. His lyrics set to old tunes, were ironic comments on what he saw as the deceit and hypocrisy of those in power.

In the 1960s and 1970s a new ethnic literature emerged. **Dee Brown's** history of the American West "Bury My Heart and Wounded Knee" (1971) led the way for a series of books on the American Indian.

By the late 1970s and the 1980s science fiction had moved to a generally accepted form of literature. Popular writers here included **Isaac Asimov and Arthur Clarke**. The 1980s also saw the rise of **popular horror fiction** with **Dean Koontz, V.C. Andrews, Peter Straub, Clive Barker and Stephen King** as the most prolific writers.

Recent literature included **John Updike's** four novels ("Rabbit at Rest", "Self-Consciousness" and others) and **Tom Clancy**. His books, such as "The Hunt for Red October", "Red Storm Rising" and "Patriot Games" top both the hardback and overall bestseller books.

The Theater

The greatest flowering of American drama came between 1920 and 1970. In those years, startling, powerful, and illuminating works, both tragic and comic, flowed from the pens of **Eugene O'Neill, Thornton Wilder, Maxwell Anderson, Robert Sherwood, Kaufman and Hart, Lillian Hellman, Arthur Miller, Tennessee Williams, and William Inge**. These playwrights reflected the events of their times, beginning with World War I, the Great Depression, World War II, and the Cold War. In his plays "Desire Under the Elms"(1924), "Mourning Becomes Electra"(1931),"Long Day's journey into Night", "The Iceman Cometh"(1946). **The first important American playwright of serious drama Eugene O'Neil (1888-1953)** made deep and sensitive analyses of human relationships. The plays of notable playwright **Arthur Miller(1915)** "All My Sons"(1947), "Death of a Salesman"(1949),"The Crucible"(1953) , "A View from the Bridge"(1955) and others were staged in many countries of the world and brought him a world prominence.

The playwrights who came after them were inspired by many events of their time: assassination of John F. Kennedy, the student rebellions of the 1960s, the war in Vietnam, etc. Each playwright, with an individual style and a message, has been mining the American society. Several of them **A.R. Gurney, John Guare, David Rabe, Sam Shepard** received both national and international popularity. There were also a number of women playwrights **Tina Howe, Marsha Norman, and Wendy Wasserstein**.

One notable development in recent years is the **"theater of absurd" (Edward Albee)**. There are also experiments with electronic music and lighting, body movements instead of spoken words, and spontaneous audience participation in some performances.

Black theater presents plays about black people, written by black playwrights, and performed by black casts. Originally such plays used to carry messages of protest against racial prejudice. Today black theater is increasingly

concerned with blacks as individual human beings and their life problems. Black theatrical performances usually use black music: spirituals, gospel singing and jazz.

Most important new plays are produced in the theaters located on or near Broadway in the midtown area of New York City. There are over 15000 professional actors in New York alone and another 20000 or so in the state of California. Over 16000 professional musicians and composers live in New York, and almost 23000 more in California. Every year outstanding Broadway playwrights, actors, musicians, directors, choreographers and technicians are nominated for Tony Awards. **August Wilson**, an Afro-American playwright, received both a Tony and a Pulitzer Prize for his play “Fences”, devoted to the fate of a baseball player who struggles with the difficulties of everyday life. **Wendy Assertion**, a female playwright won a Tony for her “The Heidi Chronicles”.

Off-Broadway theaters are shown around Manhattan in small theaters and off-off Broadway companies often play in former garages, offices and stores. Sometimes there is no raised stage and the actors perform in the center of the hall, surrounded by the audience (so-called (“theater-in-the-round”). In almost every major city there are professional companies, which follow repertory (rep) schedules. There are also traveling acting companies that tour throughout the country. Very many theater groups suffer from the lack of financing and must charge high prices for tickets in order to pay production costs and make profit.

The movies

Originally American cinema was born in the East, when in 1903 a cameraman Edwin S. Porter turned out a short film. The first “Patent Cinema Company” was formed in 1908 in Chicago. The first crew included 8 cinema-

making firms. Those who did not go into it went to Los-Angeles, California. Soon the number of film companies, producers, actors, and technical staff grew up there and the first film studio was founded in 1911 in Hollywood. There were several reasons why Hollywood, the former provincial small town was to become the main center of American cinema industry. Besides the favorable natural conditions, bright sun all the year round and splendid landscape, the land was very cheap there. Besides there was enough manpower around for building and servicing of film studios. **By 1915 60% of all American film production was accumulated in Hollywood. After the beginning of World War I film industry in many European countries was in crises. Hollywood filled the gap to create the supremacy at the world cinema market. American movies poured over the cinema screens of the world.** By the middle of the 20s Hollywood had modern financial and technical basis of film production and the professional stuff. There were **5 large studios at that time: “Metro Golden Myer”, “Paramount”, “Fox”, “Universal” and “Warner”, headed by the producers** Luise, Mayor, Sam Goldwine, Adolf Zuker, William Fox, Karl Lemale and Warner Brothers. One of the most popular and prolific producers of silent movies of that time was **David York Griffit**. He made 61 melodramas, comedies, historical films, thrillers, westerns, screen versions of the Bible and literature.

In the 20th the system of film stars appeared. Film stars were the most highly paid actors and actresses, whose names attracted crowds of filmgoers to movie-houses. The stars were necessary for the cash success of the film All over the world, from Berlin and London to Tokyo and Buenos Aires millions of people lined up every day to see their favorite Hollywood stars Charlie Chaplin, Mary Pikford, Douglas Ferbenks, Greta Garbo, Roman Navarro and others.. For most people the world of the movies remained a dream world, separate from real life. It helped to create the “American Dream” and to convince

cinemagoers that the American way of life was the ideal one. At the same time the movies made people think of their own lives, which could be changed and improved.

One of the greatest American actors, directors and scriptwriters was **Charlie Chaplin (1889-1977)**. All Charlie Chaplin's biographers agree that his miserable childhood in London slums made the decisive influence on his development as an artist. In his early "silent" comedies and satires Chaplin was never afraid to fight against tyranny and injustice. He released a parody on war "Shoulder Arms" (1918) only some time before the American troops came home from the trenches of the World War I. In the "Pilgrim" (1923) Chaplin attacked nonconformist religion. In "City Lights" he was mocking capitalism. In "Modern Times" (1936) Chaplin parodied the inhuman destruction of the machine age. His comedies "Gold Rush"(1925), "City Lights"(1931), "Modern Times"(1935), "Limelight"(1952), "A King in New York"(1957) are filled with deep human feelings and dramatic undertones. In 1940 he created his first "talking" film "The Great Dictator" - a satire on Hitler and his policy- and during World War II called for the opening of the second front and support of the Russian people.

The theme of human dignity is very strong in Chaplin's art. His constant image - the figure of a small, lonely man in a creased black suit, a derby hat, big clumsy shoes, black moustaches and a walking stick attracted millions of filmgoers not only due to his funny appearance but also to his openhearted character. "Oscar" – the best-known award for film actors was given to Charlie Chaplin in 1952, but when Chaplin emigrated to Europe, the US State Department banned his reentry. In 1972 in recognition of his lifetime contribution to film art Chaplin was at last given by the American film establishment a special Second Oscar. He was also commemorated with a

statue at the historic corner of Hollywood and Vine. He also received special golden prize at the International Film Festival in Venice.

The first “talking” movies appeared in the 30s. Change over to sound cinema was not very simple. Many actors were not ready to speak. Attached to microphones they stopped to move and act. Besides in Hollywood there were many foreign actors with strong native accents. When Hollywood developed production of the films with sound track it quickly recovered its image. During the World War II American cinema created a number of films devoted to the war problems. One of the best films of that time “Lifeboat” (1944) by **Alfred Hitchcock** analyzed Nazi threat. “Bataan” (1943) by **Tray Harriet** showed the cruelties of the war. Many cinema celebrities went to the front. Some famous producers risked their lives, shooting war chronicles.

The years before the Second World War and after it became “the golden age” of Hollywood. During that period 7500 full-length films were shot there. Eight large firms specialized in different themes: family movies, musicals, topics of wealth, power and human passions, history, gangster or horror.

One of the most popular studios working in the USA became Disney Studio opened by its creator and the greatest cartoon maker Walt Disney (1901-1966). Walt Disney was the first producer to shoot colored animated films with synchronized soundtrack. In his numerous worldwide cartoons he created the wonderful animal world of optimism and success. All his animal characters in human-like situations are always kind, friendly and smart. His Mickey Mouse’s and Donald Duck’s phenomenal popularity put the animated characters into the ranks of the most popular screen personalities in the world. Among Disney’s most famous masterpieces there are also “The Silly Symphonies”, “Cinderella” and full-length animation “Snow White and the Seven Dwarfs”. The most spectacular interpretation of musical classics was his movie “Fantasia” (1940). Besides cartoons Disney studio produced a number of

wonderful documentary films about animals, nature and different popular TV programs. His last film "The Book of Jungle" was finished after his death.

For his wonderful art Walt Disney received 29 Oscars. By 1996 more than 450 Disney clubs and stores had been created. Walt Disney's fantasies and dreams came true in two amusement parks "Disneyland" in California (1954) and "Disney World" (1971) in Florida. Millions of visitors enjoy a lot of sophisticated attractions in these "Magic Kingdoms". Some years later, in 1992 the similar Disney parks were opened in Tokyo (1983), and Paris (1992).

The Disney Studio continued producing movies after the death of his founder. "The Little Mermaid", "The Beauty and the Beast", "Aladdin", "The Lion King" became quite successful. They were followed by "Pocahontas" (1995) and "The Hunchback of Notre Dame" (1996). "Toy Story" pioneered computer-animated techniques. Disney also continued its strong presence in children's animated programs for television, with Aladdin and Gargoyles receiving high ratings.

After the World War II many new Hollywood stars appeared, such as Ingrid Bergman, Elizabeth Taylor, Marilyn Monroe, Kirk Douglas, Gregory Peck, Bert Lancaster. Such actors as Marlon Brando, James Din and Paul Newman began to use Stanislavskii system, reaching great intensity and realism. Some actors appeared in a great number of films. E.g., only one actor and director Paul Newman produced and starred in forty-five films, among them "The Hustler", "Butch Cassidy", "The Sundance Kid", "The Sting" and "Towering Inferno" and "Cat on a Hot Tin Roof" with the participation of Elizabeth Taylor. She also starred in "Cleopatra" in 1962. Film stars and Oscar Winners Audrey Heyburn and Gregory Peck also became especially popular in the 60-70s "Roman Holiday", "My Fair Lady", "Wait Until Dark", "The Omen» and others. In the 70s the most popular producers of new generation were Coppola, Lucas, Scorsese and Steven Spielberg. Coppola's film "Godfather" (1972) and

Spielberg's "Jaws"(1975) began the new era of blockbusters. Lucas's "Star Wars" and three Spielberg's films about Indiana Jones were the most famous super hits. People could like or dislike them, but it is sure that the American films and Hollywood films in particular were produced at very high professional and technical standard.

At our time gradually Hollywood transformed beyond recognition. Step by step all its studios lost their independence and joined transnational companies. Commercial success became more important than creative work. Filmed television programs turned into an important American export. As many countries found it cheaper to buy American programs than to make their own, cinemagoers all over the world were mostly watching exported American blockbusters. Generations have grown up watching American films. A lot of copies are made for VCR and sold all over the world. Film companies spent hundreds million dollars on the film production and almost the same money on their advertisements. The films by famous directors and producers Steven Spielberg, Kevin Kostner, Quentin Tarantino, Paul Verkhoven, Lucas receive the most attention. The most highly paid actors Sylvester Stallone, Jack Nicolson, Demy Moor, Julia Roberts, Sharon Stone and others receive a lot of prestigious prizes and awards at the leading international film festivals.

Music

Music in the USA is extremely varied. The ensuing generations of European immigrants brought with them the classical music and their German, Scottish and Irish folk ballads. Later America produced her own music. Railroad workers, cowboys and miners composed their songs about work, life and love. Black slaves' songs, preserving the rhythms and intonations of African tribes, acquired new features under the influence of Puritan hymns, resulting in Black hymns "spirituals" which are considered by many musicians as the highest achievement of American folk art. Black spirituals such as "Nobody Knows the

Trouble”, “When the Saints set off Machining” or “Go Down, Mosses” are remembered, sung and played even now. The list of folksong types in the USA includes Afro-American narrative songs or ballads, the Spanish narrative corride dance, Negro blues, spirituals, work songs, hymns, primitive Indian chants and prayers and the various European marches and ballads. In addition, there are superstitions, sayings, proverbs, and jokes that go with every national and racial group.

Jazz is a mixture of West African folklore with the work songs the slaves sang and religious gospel music originated in church. Jazz, initially a musical talk from downcast people to other downcast people, by the 1920-40s had become popular among all people irrespective of their class or job distinctions or political views. The first jazz bands were formed in the late 1800s. They played in bars and clubs in the South, especially in New Orleans.

The first American composer **Louis Moreau Gottschalk (1829-1869)** enlivened his “serious” music with plantation melodies and Caribbean rhythms from his New Orleans jazz bands.. He was the first American pianist to achieve international recognition, but his early death contributed to his relative obscurity.

George Gershwin (1898-1937) was also one of the first to use Afro-American melodies in his music. Together with his brother he created world famous opera “Porgy and Bess” and two musical comedies “Rhapsody in Blue” and “An American in Paris” which included jazz rhythms and blues.

Aaron Copland (1900-90) indulged his interest in jazz as well. Besides writing symphonies, concertos, and an opera, he composed the scores for several films. He is best known, however, for his ballet scores, which draw on American folk songs; among them are “Billy the Kid”, “Rodeo”. Copland chose a traditional Quaker religious song as one of the main themes for “Appalachian Spring”, which celebrated life in the Appalachian Mountains in the eastern region of the United States.

The orchestras of **Duke Ellington, Count William Basie, Frank Sinatra** and **Glemm Miller** became the universal musical culture, which all Americans are proud of. Among the outstanding jazz musicians there are the names of **Louis Armstrong, Benny Goodman and Ella Fitzgerald**.

Composers **Arthur Schwartz** and **Richard Rodgers** should also be mentioned. The songs “Yellow River”, “Night and Day”, “Tea for Two” crossed national boundaries and became popular in Europe. **Scott Joplin (1868-1917)** was born in freed slave musical family and managed to mix African beat with classical European music. His wonderful style became known to both black and white musicians as Ragtime in the early 1900s.

Thirty years after jazz another kind of popular music appeared – big beat (big rhythm). In 1954 the disc jockey **Alan Freed** started to broadcast the Black rhythm-and-blues records. He called this music Rock-and-roll after an old blues “My Baby Rocks Me in a Steady Roll”. The 50s were also marked in the USA by the enormous success of the most famous rock “n” roll superstar singer and guitar player **Elvis Presley (1935-77)**. What was new in his performance was aggression, sexuality together with Black blues and white romantic crooning and sentiment. Having broken all the standards, he became particularly admired by the young people. His songs “Heartbreak Hotel”, “Hound Dog”, “Blue Suede Shoes” and many others were recorded in multimillion copies. To rock and roll enthusiasts Presley got to symbolize not only a rock and roll singer but also a new youth culture. Among other things, this culture developed its own vocabulary, ways of dressing, even hairstyle. It even began to reject socially approved ideas and ways of behaving.

Later rock-and-roll blended with the protest songs of the 1960s to become rock, the music that was harder and less escapist. Rock became both an American and international phenomenon. Millions of young people worldwide saw it as their natural cultural language, a symbol of opposition to officially approved ideas and standards. Rock composers have always tried to represent the authentic sound of spoken English, and have therefore written what they have heard, rather than used

standard spellings. Hard rock became bigger and louder than any beat before it, simply because it was amplified and very noisy.

There are lots of superstars these days; among fifteen number one hits there are the ones of Madonna, Diana Ross, Mary Wilson, Cindy Birdsong. In the 1970-80s Michael Jackson made his fantastic career. In addition to live performances he produced a lot of records, CDs and video clips. His particular ability to combine extraordinary gracious movements with singing brought him fame all the world round.

Some young musicians combined their vocal and composer masteries with their dramatic skills (so-called “performance”). The talented singer Diamond Galas (1955) using a very gloomy vampire stage image and lots of technical and light effects created unsurpassed emotional performances full of energy and expressions. Joan La Barbara (1947) possessing a wonderful vocal technique brilliantly experiments with modern compositions written by her husband Morton Subotnic and chamber music easily passing from charming whispering and thrilling moans to anxious beast cries. Black composer **Anthony Davis (1951)** improvises